

Paper 5: A novel methodology for feedback for large classes in partnership with the students

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ABSTRACT

Generally, providing individual feedback, in the case of large-sized classes, is near impossible or would require disproportionate effort to do so. Generic feedback, instead, has a little value in enhancing students' learning and their satisfaction. Consequently, the authors of this paper have proposed a novel methodology to overcome the two extremes of such feedback procedures i.e., individual feedback and generic feedback. In this paper, the authors propose a pseudo-personalized feedback mechanism in which the feedback is clustered into several categories according to the correlation in the student response to the assessment. The feedback process is completed in partnership with the students.

INTRODUCTION

Assessment and feedback (A&F) are central to any educational process, in particular to higher education. In view of National Student Survey (NSS), an exceptional score in this category can help in improving the overall university ranking. Every academic institute attempts to achieve better scores in the A&F section of NSS and prepares some action plans accordingly to improve the scores. Through UK Professional Standard Framework (UKPSF, 2019), Higher Education Academy (HEA) also considers the importance of A&F, for instance, A&F is considered a key area of activity (UKPSF – A3), which highlights, “assess and give feedback to learners”.

However, it is always difficult for the instructors to provide individual feedback, especially for large classes. As a result, student expectations are not always met in regards to A&F. An efficient A&F process can lead to several positive outcomes including greater student engagement and improved learning abilities. However, there should be some simple and effective A&F mechanisms which not only achieve the required objectives but also make the process smooth for both academics and students.

LITERATURE REVIEW / RATIONALE

A student has to go through various forms of assessments during their course of study. These assessments could be in the form of exams, laboratory exercises, presentations, essay writing etc. (Race, 2007 and Race, 2009). While each sort of assessment has its own pros and cons, it becomes extremely important to provide targeted and tailored feedback to the students on their assessments in order to improve their learning. However, it is difficult to prepare and provide effective feedback particularly to a large class size. Not only it is important for the instructors to select the correct form of assessment but also correct means of providing feedback are necessary to enhance student learning. Further, the A&F process should be able to stimulate and inspire students to learn (Hounsell, 2008).

Irrespective of the nature of assessment, summative or formative, providing individual feedback is a time-consuming process which may involve inconsistencies, illegible handwriting, and vague remarks (Chanock, 2000). The automated feedback (Biggam, 2010) is another form of providing seemingly personalized feedback but they also need editing in some cases and may appear relatively generic to a wider community of students and thus not fulfilling the basic requirements of the A&F process.

On the other hand, involving students in the A&F process results in greater student engagement and the development of the feelings of being part of the learning process at the students' end. It shifts the balance of power by giving some control to the students over their learning (Vickerman, 2009). There are several advantages of involving students in the A&F process which include better student understanding of the academic standards of the module, assessment criteria and how they are applied to their work (Bloxham and Boyd, 2007). Also, it improves their ability to judge and provide constructive feedback to the peers.

The rationale behind the study is to find a more effective feedback procedure instead of the existing generic and individual feedback procedures with the student partnership. Individual

feedback demands more resources and efforts while generic feedback is less consuming but less effective towards student learning improvement.

AIM AND OBJECTIVES / RESEARCH QUESTION(S)

In light of the above discussion, we propose a novel feedback framework with the following aims:

1. To engage the ex-students in the feedback process
2. To divide the assessments into appropriate clusters according to their feedback correlations
3. To provide detailed feedback through ex-students for each feedback cluster
4. To provide top-level feedback through instructor in the form of videos

METHODOLOGICAL APPROACH

The study was implemented for year 1 students in the course of Microelectronics Systems in EEE program in their Fall semester. There were approximately 202 students who participated in the process and the feedback was provided before the midterm exam to observe the effectiveness of the feedback in their performance in the midterm exams. 3 senior students who took the same course last year were selected for partnership. The whole process was completed in partnership of these 3 students who shared the responsibilities of implementing all the project steps.

After the completion of the study, the students completed a reflective feedback questionnaire about all the components of the project including feedback quality, timeliness of the feedback etc. on a 5-point Likert scale. The use of Likert scale helped in quantifying the results. There were some open ended questions to provide the commentary about overall quality of the feedback process. It was made an intentional effort to ask the students to complete the questionnaires in their lab hours to increase the student participation. While the student participation was very high, it was observed that there were some students who would not complete the questionnaire with much interest and would provide random scores. An introductory session before handing over the questionnaire could help to increase student interest in providing feedback. Further, some focus group interviews were also conducted with the student partners and their feedback was also recorded.

THE ENGINEERING EDUCATION PROBLEM AND INTERVENTION

Our objective was to search a trade-off solution which could work efficiently and effectively for large size classes while providing feedback. We proposed a new framework with feedback provided in two steps to solve the problem. Ex-students, who were considered to be the top students, helped in preparing the clusters of the answer sheets. The answer sheets requiring similar feedback were grouped together in a cluster and thus five different feedback clusters were prepared. The students also helped in preparing the pointers for each feedback cluster to help the instructor prepare feedback videos accordingly. The details of the two feedback steps are given below:

Feedback Step I: The instructor studied the feedback pointers prepared by the ex-students. Then the instructor prepared a set of feedback videos based on the given information. There was one video to address each feedback category. The instructor discussed the criteria for the students to fall into that particular category and the most common strengths of the students observed during the assessment process. It also highlighted the most common weaknesses, the reasons for those and subsequently presented tips to avoid such in the future.

Feedback Step II: In the second feedback stage, the ex-students provided detailed feedback on the work of all the students who participated in the assessment phase. This detailed feedback also includes the detailed solutions of the assessments.

It is worth mentioning here that the study was conducted for formative assessment and feedback and the purpose was to provide students the guidance and support to prepare better for the summative assessments which are considered towards their grades.

KEY FINDINGS

Some of the key findings include the response about the timely availability of feedback, the usefulness of the feedback, comparison to the generic feedback (GF) and individual feedback (IF). As shown in Fig. 1, around 83% of the students agreed/strongly agreed about the in time availability of the feedback. It is worth mentioning that the feedback process was completed within 3 weeks. The feedback was considered useful by more than 88% of the participating students— whereas 85% of the students agreed/strongly agreed to the feedback method being more efficient as compared to generic feedback. Approximately 81% of students agreed/strongly agreed to the method being a good alternative to individual feedback. There were around 79% of the participants who considered that the video feedback (VF) was a value addition (VA) to the detailed feedback that they had through the ex-students. Moreover, 86% of the students agreed/strongly agreed that the

feedback was clear and understandable. Approximately 80% of the students considered that the feedback was relevant to their needs and requirements.

The ex-students who were involved in the feedback process considered the experience as enjoyable, challenging and worth investing time to gain the insights about the feedback process. On average, the students performed better than the previous year students in the midterm exam, however, the improved feedback process might not be the only reason for that improvement.

Fig. 1: Feedback questionnaire results (red – strongly agree, yellow – agree, blue – neutral, green – disagree, orange – strongly disagree, dark blue – no response)



DISCUSSION

The assessment and subsequently feedback were conducted before the summative assessment where the delivery of the feedback concluded days before the actual assessment. The practice can be considered successful from the perspective of the instructor as well as the students. Being the instructors, we realised some of the aspects of the feedback process that might still be made more efficient in terms of implementation e.g., the clustering of the assessment could be made efficient in terms of more distinctive clarity among different clustering categories. The student had a great opportunity to test their knowledge level and have feedback on their strong and weak learning aspects. Moreover, they were also provided experienced feedback on improving their exam performance by the use of some tips and tricks. Although the whole assessment and feedback process took a lot of time for the students to prepare and perform but it was worthy in terms of better grade reflection in their summative assessments.

The study can be adopted for any engineering education program and in particular, for programs having a large number of students. Involving ex-students in the feedback process can not only help in their own learning but also improve the feedback process in regards to

time and efficiency. Using time efficient and outcome oriented feedback methodologies like the one presented in this paper can be adopted by other engineering instructors and benefit a large community. However, a detailed research analysis of the study would be required in order to contemplate whether the proposed framework can replace the individual feedback. In our view, although not as useful for small classes, but the practice can benefit the students as well as instructors for large size classes where the individual feedback is almost impossible to provide in most of the scenarios.

CONCLUSIONS & RECOMMENDATIONS

The paper proposed a novel methodology to improve the feedback for large-sized classes. Some ex-students were involved to prepare assessment clusters based on the correlation among student responses. The clustered feedback process was found less time consuming and a good alternative to individual feedback to enhance students' learning and satisfaction. We plan and recommend to trial the methodology for various courses with varying class sizes to critically evaluate the effectiveness.

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